1 GENERAL INFORMATION

1.1 Product description

The PCX822np card is a multichanel Professional Audio Card for PCI Bus (half length format).
It is intended for markets demanding high quality stereo cards with both analog and digital I/O.
- PCX card with on board processing (DSP56303/80MHz) and inter-card synchronization.
- One stereo (or two mono) input and four stereo (or eight mono) outputs.
- Analog and digital input-outputs on the same card (no options).
- High quality 24 bits/48kHz PCI stereo card.
- LTC input.
- On board programmable sampling generator (from 8kHz to 50kHz by 0.2% steps).
- npSDK supported.

Main features:

- Audio inputs:
  - Analog line inputs: - 8 balanced analog line inputs (can be used with unbalanced signals). Switch selectable input impedance : 600 or >10 k
  - Digital input: - 1 AES/EBU or S/PDIF stereo input. Transformer coupled.
- Audio outputs:
  - Analog outputs : - 8 balanced analog outputs (can be used as unbalanced). Output impedance < 100 .
  - Digital outputs: - 4 AES/EBU or S/PDIF stereo outputs. Transformer coupled.
- Analog performances: - Sampling frequencies: 8, 11.025, 16, 22.05, 24, 32, 44.1, 48 kHz available, adjustable by 0.2% steps
- Digital synchronization input: - Same characteristics as main digital input. AES11 compliant synchronization.
- Word Clock input: - Standard Word Clock input (TTL input)
- LTC input: - Accepts Time Code signal (SMPTE LTC) - Unbalanced input
- Processing: - Processing power is given on board DSP56303/80MHz
- Analog and digital connectors: - SubD high density type. Compatible with PCX820v2.

Depending of applications, number and type of input/ouputs nedeed, different options are available:
- PCX442np
- VX822

Mains differences between PCX822np, PCX442np and VX 822, are summarized in the following:

	PCX822	**PCX442np**	**VX822**
Analog inputs	2 mono	4 mono	2 mono
Digital inputs	1 stereo	2 stereo	1 stereo
Analog output	8 mono	4 mono	8 mono
Digital output	4 stereo	2 stereo	4 stereo
Digital sync input	1	1	1
Word Clock sync input	1	1	1
LTC (SMPTE) input	1	1	none

All options of PCX822 use the same printed circuit; Software is different, depending of the option.
VX822 is exactly the same hardware as PCX822, but the software doesn't manage compression/decompression of audio files.
PCX822np and PCX422np use the same printed circuit, but some components are/or aren't loaded.

For more information, see product's data sheet at section 1.6.

1.2 Related Submittal(s) / Grant(s)

All host equipment used in the test configuration are FCC granted, when relevant.

1.3 Tested System Details

The FCC IDs for all equipment, plus description of all cables used in the tested system (including inserted cards, which have grants) are :

Trade Mark – Model Number (Serial number)	**FCC ID**	**Description**	**Cable description**
PCX822np* (sn: 011900042)	IGT822NP	Audio terminal	All I/O cables are shielded
HEWLETT PACKARD BRIO D6769A (sn: FR83332107)	D.O.C.	Personal computer	All data cables are shielded Power cable unshielded
HEWLETT PACKARD D2846A (sn JP74001000)	D.O.C.	21" color monitor	Shielded video cable
HEWLETT PACKARD C4739 (sn: C990949297)	D.O.C.	Keyboard	Shielded cable
HEWLETT PACKARD C4736 (sn: LZA93061903)	JNZ201213	Mouse	Shielded cable
LABTEC LT-100 (sn: none)	None	Headphone	Shielded cable
TELEX (sn: none)	None	Microphone	Shielded cable
HEWLETT PACKARD C6410A Deskjet 895Cxi (sn: MY9761915T)	D.O.C.	Parallel printer	HP C2950A shielded cable
HEWLETT PACKARD C2106A Deskjet500 (sn: 3110S58792)	B94C2106X	Serial printer	HP 24542G shielded cable
INTEL YC76 (sn: 0045143)	EDUY76	WebCam	Shielded cable

*Equipment Under Test

1.4 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4-1992, CISPR22-1993/A1:1995/A2:1996 and EN55022:1994/A1:1995/A2:1997.
Radiated testing was performed at an antenna to EUT distance of 10 meters. During testing, all equipment's and cables were moved relative to each other in order to identify the worst case set-up.

1.5 Test facility

Tests have been performed on July 20th 2000.
The test facility used to collect the radiated and conducted data is the SMEE Actions Mesures facility, located ZI des Blanchisseries, 38500 VOIRON, France. This test facility has been fully described in a report and accepted by FCC as compliant with the radiated and AC line conducted test site criteria in ANSI C63.4-1992 in a letter dated August 04, 1999 (registration number 94821).
This test facility has also been accredited by COFRAC (French accreditation authority for European union test lab accreditation organization), accreditation number 1-0844 as compliant with test site criteria and competence in EN55022/CISPR22 norms for 89/336/EEC European EMC Directive application. All pertinent data for this test facility remains unchanged.

1.6 Data sheet of the product

Overview

- Audio card for PCI bus
- 2 analog mono inputs
- 1 digital stereo input
- 1 digital sync input
- 8 analog mono outputs
- 4 digital stereo outputs
- 1 Word Clock sync input
- 1 LTC (SMPTE) input

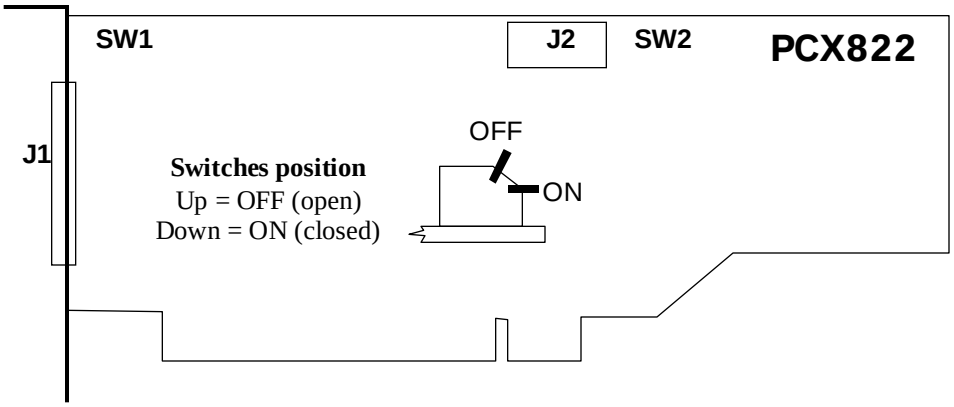
Hardware requirements

- One card slot, PCI 2.1 compliant.
- One available IRQ line (level sensitive).
- 256 bytes of available I/O space.

Software requirements

- np driver V5.50 or higher

Layout and connections



Connectors

J1 – Analog Audio connector. (High density SubD 62, female) – optional breakout cable available on request.

1.6.1.1	1.6.1.2 Signal	1.6.1.2.1	Signal	PIN #	Signal
1	NC	22	GND	43	AES/EBU IN –
2	NC	23	NC	44	AES/EBU IN +
3	AES/EBU SYNC –	24	GND	45	AES/EBU OUT 3 –
4	AES/EBU SYNC +	25	NC	46	AES/EBU OUT 3 +
5	AES/EBU OUT 4 –	26	NC	47	AES/EBU OUT 1 –
6	AES/EBU OUT 4 +	27	GND	48	AES/EBU OUT 1 +
7	AES/EBU OUT 2 –	28	NC	49	Word Clock IN
8	AES/EBU OUT 2 +	29	NC	50	NC
9	LTC IN	30	GND	51	OUT 7 –
10	OUT 8 –	31	NC	52	OUT 7 +
11	OUT 8 +	32	NC	53	OUT 5 –
12	OUT 6 –	33	GND	54	OUT 5 +
13	OUT 6 +	34	NC	55	OUT 3 –
14	OUT 4 –	35	NC	56	OUT 3 +
15	OUT 4 +	36	GND	57	OUT 1 –
16	OUT 2 –	37	NC	58	OUT 1 +
14	OUT 2 +	38	NC	59	NC
18	NC	39	GND	60	NC
19	NC	40	NC	61	IN 1 –
20	IN 2 –	41	NC	62	IN 1 +
21	IN 2 +	42	GND		

J2 – Inter boards sync connector. Used in multi-cards configurations.

Switches

SW1 - Input impedance

Pos.	input impedance
OFF (Open)	> 10 k
ON (Closed)	600

SW2 – Inter boards sync switches.
In configuration with a single card, all switches must be “ON”
In a linked cards configuration, only one of the cards must have all switches “ON”, all others must be “OFF”

Detailed features

Audio inputs

Analog line inputs

- 8 balanced analog line inputs (can be used with unbalanced signals).
- Maximum input level available +22dBu
- Switch selectable input impedance : 600 or >10 k
- 24 bits analog to digital converters (64 x oversampling delta-sigma)
- Input level adjustment : software adjustment by 0.5dB steps

Digital input

- 1 AES/EBU or S/PDIF stereo input. Transformer coupled.
- 24 bits available.

Audio outputs

Analog outputs

- 8 balanced analog outputs (can be used as unbalanced).
- Maximum level : +22dBu (software adjustable)
- Output impedance < 100 .
- 24 bits digital to analog converters (64 x oversampling delta-sigma).
- Output level adjustment : down to – 91.5dBu by 0.5dB steps.

Digital outputs

- 4 AES/EBU or S/PDIF stereo outputs. Transformer coupled.
- 24 bits available.

Analog performances

Sampling frequencies

- 8, 11.025, 16, 22.05, 24, 32, 44.1, 48 kHz available, adjustable by 0.2% steps

Characteristics measured at 48 kHz sampling frequency, record + playback in linear.

- Signal / Noise ratio (un-weighted) : better than 92 dB.
- Total Harmonic Distortion + Noise (un-weighted): less than – 90 dB (0.003%) with 1kHz signal.
- Frequency response (20Hz/20kHz) : ± 0.2 dB.
- Difference in phase (20Hz/20kHz) : 0.2° / 2°
- Interchannel isolation : better than – 93 dB

Digital synchronization input

- Same characteristics as main digital input. AES11 compliant synchronization.

Word Clock input

- Standard Word Clock input (TTL input)

LTC input

Accepts Time Code signal (SMPTE LTC)

- Unbalanced input
- Signal level limits : –20dBu min. to +6dBu max.
- Capture range : nominal speed +/- 10%

Processing

Processing power is given on board DSP56303/80MHz, associated with 256kWords RAM (768kBytes).

Physical

- Card designed for PCI bus. 265 mm length, 99 mm height